

## Psychosocial Treatments for Posttraumatic Stress Disorder

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The study of psychosocial treatments for posttraumatic stress disorder (PTSD) has improved dramatically in the past decade, with greater rigor, expansion of sampling, and diverse treatment models. At this point it is clear that PTSD treatments work better than treatment as usual; average effect sizes are in the moderate to high range; a variety of treatments are established as effective, with no one treatment having superiority; and both present-focused and past-focused models work (neither outperforms the other). Areas of future direction include the need to better understand therapist training, treatment dissemination, patient access to care; optimal treatment delivery, and mechanisms of action. Methodological issues are also discussed.

Awareness of posttraumatic stress disorder (PTSD) has increased markedly since the diagnosis originally appeared in the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 1980). First conceived as a disorder primarily suffered by soldiers in wartime, it has since been understood as a disorder arising from a wide variety of traumas, including natural disaster (such as hurricane or tornado), child physical and sexual abuse, domestic violence, life-threatening illness, accidents, and terrorist attacks. A majority of people experience one or more traumas during their lifetime, with rates at 61% for men and 51% for women (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Yet, remarkably, most people who experience a trauma do not go on to develop PTSD. For the approximately 20 to 30% of people who do develop PTSD after exposure to trauma (Adshad, 2000), their symptoms cluster into three categories: (a) *re-experiencing* (e.g., intrusive thoughts, nightmares, and flashbacks), (b) *avoidance* (e.g., not wanting to talk about the trauma, detached feelings, and re-

stricted emotion), and (c) *arousal* (sleep problems, anger, and exaggerated startle response). Persistence of these symptoms for more than 1 month and marked decline in functioning are also required for the diagnosis. The 12-month prevalence rate of PTSD in the U.S. population is estimated at 3.5% (Kessler, Chiu, Demler, Merinkangas, & Walters, 2005).

A majority of people with PTSD have additional mental health disorders, including mood disorders, substance use disorders, other anxiety disorders, and personality disorders (Kessler, Sonnega, et al., 1995). The subjective experience of PTSD has been described as a devastating loss that "shatters assumptions" about oneself, other people, the future, and the world (Janoff-Bulman, 1992), and that affects one's sense of safety, trust, power, esteem, and intimacy (McCann & Pearlman, 1990). A broad literature on PTSD now exists within the professional field and also in literature (e.g., Frankl, 1963; Morrison, 1987; Wiesel, 1960) and film (*Once Were Warriors*, *Monster*, *This Boy's Life*, *Schindler's List*, *Saving Private Ryan*).

Historically, description of trauma occurred in ancient literature (the *Iliad*) and at various historical points largely in relation to combat, with terms such as *soldier's heart* during the American Civil War, *shell shock* during World War I, and other terms such as *combat neurosis* and *war hysteria* (Weisaeth, 2002). In 1895, Freud and Breuer proposed that trauma could lead to mental disorder, an idea radical for its time (Veterans Health Administration, 2004). After the Vietnam War, the formal diagnosis of PTSD was established in the *DSM-III*. The decades since then have seen enormous growth in the study of PTSD, including its epidemiology, assessment, neurobiological substrates, and the development and testing of new treatments for it.

This chapter offers a summary of effective psychosocial treatments for PTSD, with emphasis on their scientific validation. The chapter is organized into three sections: key principles, description and empirical validation of treatments, and future directions. The chapter only addresses treatments specifically designed for PTSD, although, interestingly, some generic treatments may help improve PTSD symptoms (e.g., Hien, Cohen, Miele, Litt, & Capstick, 2004; Levine, Eckhardt, & Targ, 2005). Also, it focuses solely on samples with PTSD; this means that it is beyond the scope of this chapter to address interventions to prevent the development of PTSD (e.g., "crisis intervention," "prevention research," or "critical incident stress debriefing"), or samples with sub-threshold PTSD or trauma only. Studies of children and adolescents are not reviewed here because this literature is very limited; at this point it largely uses adult models adapted for those ages and obtains results comparable to adult studies; see Carr (2004), Taylor and Chemtob (2004), and Cohen, Berliner, and March (2000) for reviews. Treatments are included only if they are designed to treat PTSD *per se* rather than one specific symptom (e.g., imagery rehearsal therapy for nightmares; Krakow et al., 2001; or anger management; Chemtob, Novaco, Hamda, & Gross, 1997). Treatment modalities without a sufficient empirical base for PTSD specifically are also not reviewed; these include group therapies (for a review, see Foy et al., 2000), inpatient treatment (Courtois & Bloom, 2000), psychosocial rehabilitation (Penk & Flannery, 2000), creative therapies (Johnson, 2000), marital and family therapy (Riggs, 2000), and dialectical behavior therapy (Wagner &

Linehan, 2006). Finally, the focus in this chapter is on results at the end of treatment rather than at follow-up because internal validity of studies is generally strongest from pre- to posttreatment. Case reports are not reviewed due to space limitations.

### A Note on Methodology

The studies reviewed are classified into Types 1 through 5 in keeping with the intent of this book. However, it is noteworthy that almost no PTSD treatment studies at this point meet all of the "gold standard" criteria for a methodologically sound trial (Harvey, Bryant, & Tarrier, 2003; Ironson, Freund, Strauss, & Williams, 2002), which is true for most treatment outcome trials in mental health more generally. For example, most studies do not report power analysis; and some have only partially blind evaluators. Moreover, a Type 2 study may have strengths lacking in a Type 1 study. And, many methodology issues are not addressed by the Type 1–5 classification (e.g., adherence rating; therapist training; evaluator training; rates of comorbid diagnoses in the sample; length of follow-up; adequacy of treatment dose; impact of external, uncontrolled treatments; and therapist effects). Thus, Types 1 through 5 are meant as broad guidelines only that await further refinement and validation.

### KEY PRINCIPLES

Across the wide range of studies now available, several principles can be stated.

1. *PTSD treatments work (and better than treatment as usual)*. A relatively large number of studies show consistent evidence that treatments specifically designed for PTSD do indeed work. This is the conclusion drawn by every major review (Types 4 and 5) on psychosocial treatments for PTSD (Adshead 2000; Bisson & Andrew, 2005; Bradley, Greene, Russ, Dutra & Westen, 2005; Butler, Chapman, Forman, & Beck, 2006; Deacon & Abramowitz, 2004; Foa, Keane, & Friedman, 2000; Harvey, et al., 2003; Resick, Monson, & Gutner, in press; Sherman 1998; van Etten & Taylor 1998; Solomon & Johnson, 2002) and professional practice guidelines such as the International Society for Traumatic Stress Studies (Foa, et al., 2000); the Royal College of Psychiatrists and the

British Psychological Society (2005), and Veterans Health Administration (2004).

The degree of improvement is in the moderate to high range (Bradley, et al., 2005; Solomon & Johnson, 2002). For example, according to a major meta-analysis (Type 4 study) by Bradley, et al. (2005), 67% of patients who complete PTSD treatment no longer meet criteria for the disorder ("completer analysis"), and 56% of patients who enroll in PTSD treatment no longer meet criteria for the disorder ("intent-to-treat analysis"). Effect sizes, which measure the degree of change, are reported to average 1.43 from pre- to posttreatment, 1.11 when comparing PTSD treatment versus wait-list control conditions, and .83 when comparing PTSD treatment versus supportive therapy control condition. Consistent with these findings, another recent meta-analysis (Type 4 study) reports an average effect size of 1.49 across PTSD treatment studies (Royal College of Psychiatrists and the British Psychological Society, 2005).

2. *A variety of treatments are effective, thus allowing therapists and patients to choose based on their preferences.* A major advance has been the empirical validation of various models of PTSD treatment. Thus, there is no one right way, but many. It is now possible to select effective treatments (and possibly to combine them) based on the therapist's training, the treatment context, and patient presentation or preference.

3. *PTSD treatments fall into two broad categories: past-focused and present-focused (or their combination).* Past-focused models ask the patient to tell the story of the trauma in full detail, to process the memories and emotions of the event. Present-focused models teach the patient coping skills to improve functioning (e.g., assertiveness training, relaxation, grounding, cognitive restructuring). Examples of past-focused models include eye movement desensitization and reprocessing (EMDR) and exposure therapy. Examples of present-focused models include stress inoculation training and anxiety management.

4. *Overall, effective treatments do not differ significantly from each other.* For example, present- and past-focused models both work, and neither outperforms the other. This is often a surprise to therapists and patients, who may assume that telling the story of the past trauma is essential for recovery. Similarly, within any category, treatments do not differ significantly from each other. For example, among past-

focused treatments, EMDR and exposure therapy both work, and neither outperforms the other (Bradley, et al., 2005; Royal College of Psychiatrists and the British Psychological Society, 2005).

5. *Combining effective treatments is intuitively appealing, but research indicates that it is not needed.* Various studies have compared combinations of effective treatments (e.g., exposure therapy plus stress inoculation training), but the combined treatment consistently shows no greater efficacy than each treatment alone (Bryant, Moulds, Guthrie, Dang, & Nixon, 2003; Foa, et al., 2005; Foa, et al., 1999; Foa, Rothbaum, Riggs, & Murdock, 1991; Glynn, et al., 1999; Paunovic & Ost, 2001).

6. *The empirical base has improved dramatically over the past decade.* The field has evolved in the number of studies, the array of researchers and patient populations, and the "technology" of studies (most studies now used accurate PTSD diagnoses, decent statistical methods, etc.).

7. *Despite the advances of the past decade, notable treatment obstacles remain.* Most PTSD patients never receive treatment (Kessler, Demler, et al., 2005). Also, most therapists do not use PTSD-specific treatments (Becker, Zayfert, & Anderson, 2004; Zayfert & Becker, 2000), and may lack knowledge about the disorder (Davidson, 2001; Munro, Freeman, & Law, 2004; Najavits & Kanakollu, 2005). Dropout rates from treatment remain a persistent issue (Zayfert, et al., 2005).

8. *In addition to treatments that have some empirical basis, the PTSD field has various untested treatments and some that are suspect.* Some treatments are simply not yet tested (e.g., creative therapies); others appear to hold promise by having been evaluated in case studies or uncontrolled pilot trials. A few models, even some that are widely used, do not appear to have a clear basis either theoretically or empirically (Devilly, 2005).

9. *Additional research is essential.* Areas of particular need include how to improve training and dissemination of effective treatments; greater understanding of why some treatments are adopted more often than others; higher sample sizes; broadening of populations (e.g., children and adolescents); better understanding of the interaction between patient/therapist variables and treatment models; longer follow-up; effectiveness studies; optimal timing of treatment; comorbidity; increased consensus on optimal

outcome methodology and adequate reporting of such; greater attention to external/uncontrolled treatments; access to care; and further study of promising models.

#### DESCRIPTION AND EMPIRICAL VALIDATION OF TREATMENTS

In this section, specific models of PTSD treatment and their empirical validation will be described. Models are classified into *past-* or *present-focused* or a combination (Najavits, Shaw, & Weiss, 1996), per point 3 above.

##### Past-Focused Treatments

The following treatments share a common strategy of asking the patient to describe the past trauma vividly, in all its detail. As the patient describes the trauma, he or she may be overwhelmed by intense emotions such as rage, sadness, panic, and fear. The patient is encouraged to experience these emotions and memories fully, after which (by the end of the session) the goal is to return to a calmer state. The patient essentially “works through” or “processes” the trauma. The patient is asked to repeat the trauma narrative as many times as needed until it no longer holds strong emotional power. The patient faces the overwhelming memories and emotions that have been pushed out of consciousness (the avoidance cluster of PTSD symptoms). Watching a patient do this emotional work is similar to watching someone grieve a loss (such as at a funeral), and appears to recreate the inherent human ability to mourn and to come through stronger in the end. The therapist guides the patient to focus on “hot spots” that may be particularly painful (such as the words that the rapist said at the time of the assault, the look on the face of the child as it died, or the smell of smoke at the fire). The patient may be asked to notice all senses (smell, sight, sound, touch, hearing) and to speak in the present tense, so as to increase the vividness of the memories. If the patient experienced multiple traumas, there may be an attempt to fully process the most upsetting trauma, and to move to others if needed.

Such treatment interventions go by many different names, including eye movement desensitization

and reprocessing, exposure therapy (and variants such as prolonged exposure, in vivo exposure, imaginal exposure, direct therapeutic exposure, virtual reality exposure, narrative exposure, flooding, systematic desensitization, cognitive processing therapy, trauma-processing therapy, trauma-focused therapy, mourning, grief work, and “telling your story”). Among the many versions of such treatments, several have accumulated a compelling body of empirical validation. Overall, such treatments represent an elegant and powerful method that often achieves results in quite short time frames (particularly for single-incident trauma). However, such methods may also be contraindicated under some circumstances because the intense emotion that is evoked may be too disturbing for some patients who are currently unstable, such as those in violent domestic relationships, the homeless, and active substance abusers who may be prone to relapse (Keane, 1995; Najavits, 2002; Solomon & Johnson, 2002).

Some past-focused models include a focus on instilling new beliefs about the trauma for patients who may hold negative assumptions that impede recovery. These may include excessive self-blame for the trauma, concluding that the world is unsafe, or distrusting all members of the opposite sex, for example.

##### Eye Movement Desensitization and Reprocessing

Eye movement desensitization and reprocessing (Shapiro 1995) is the most widely adopted treatment among past-focused, empirically validated PTSD models. It follows a highly structured protocol in which the patient is asked to name the key image, belief, feeling, and body sensation associated with the trauma memory. With these in mind, the patient now tracks the therapist’s raised fingers moving back and forth horizontally across the patient’s visual field (called *eye movements*). The patient may experience the process as being able to view the trauma with more perspective or understanding (e.g., being able to view a child abuse scene from the perspective of adult). Using the same eye movement procedure, the therapist next works to reinforce a positive belief about the event (e.g., from “It was my fault” to “I was just a child and did my best to survive”). The patient is allowed to follow the associative memory network, one memory leading into another, until the related

memories are fully processed. There is no homework for the patient in EMDR. The number of sessions may range from a few to many, depending on the complexity of the patient. Some therapists use tapping or lights instead of eye movements; the essential element is believed to be bilateral stimulation.

EMDR is now established as a premier treatment with sufficient Type 1 studies by a variety of investigators (for reviews, see, for example, Bradley et al., 2005; Butler et al., 2006; Chemtob, Tolin, van der Kolk, & Pitman, 2000a; Chemtob, Tolin, van der Kolk, & Pitman, 2000b; van Etten & Taylor, 1998). It is listed as an effective treatment by various recent consensus practice guidelines on PTSD, including the Royal College of Psychiatrists and the British Psychological Society (2005), the Veterans Health Administration (2004), and the International Society for Traumatic Stress Studies (Chemtob et al., 2000a, 2000b).

EMDR was a highly controversial treatment for many years, for various reasons, including its rapid adoption worldwide by therapists in advance of its full empirical validation, and a perceived lack of clarity on its theoretical premise. It has been established as effective only for PTSD but has been applied to a much wider range of conditions. Some suggest that it is simply a version of exposure therapy, and that the eye movement procedure is not essential (Deacon & Abramowitz, 2004). The exact mechanism of action in EMDR remains unclear (which is also true of most, if not all, PTSD treatments at this point).

There are a variety of Type 1 studies of EMDR (such as Marcus, Marquis, & Sakai, 1997; Carlson, Chemtob, Rusnak, Hedlund, & Muraoka, 1998; Power et al., 2002; Rothbaum, 1997; Rothbaum, Astin, & Marsteller, 2005; Taylor et al., 2003). Overall, EMDR does as well as the treatment to which it is most often compared, exposure therapy (Rothbaum et al., 2005), or the combination of exposure therapy plus cognitive therapy (Power et al., 2002); and outperforms biofeedback/relaxation (Carlson et al., 1998). Some studies show differences, but they go in both directions (e.g., a study in which EMDR evidenced "a slight advantage" over exposure therapy plus cognitive therapy (Power et al., 2002); and, conversely, a study in which exposure therapy outperformed EMDR (Taylor et al., 2003). Recent meta-analyses conclude that EMDR and exposure therapy evidence no difference in outcome and/or duration of

treatment (Bradley, et al., 2005; Royal College of Psychiatrists and the British Psychological Society, 2005). In Type 1 studies, EMDR has also outperformed control conditions such as wait-list (Power et al., 2002; Rothbaum, 1997; Rothbaum et al., 2005) and routine clinical care (Carlson et al., 1998; Marcus et al., 1997), although in one study it did not outperform a relaxation control (Taylor et al., 2003).

Quite a few Type 2 studies of EMDR have also been conducted. The majority show better outcomes for EMDR when compared with control conditions (Chemtob, Nakashima, & Carlson, 2002; Devilly, Spence, & Rapee, 1998; Scheck, Schaeffer, & Gillette, 1998; Wilson, Becker, & Tinker, 1995). Moreover, in studies comparing it with active treatment, EMDR outperformed exposure therapy in one study (Ironson et al., 2002) and showed a slight advantage over exposure therapy plus stress inoculation training in another (Lee, Gavriel, Drummond, Richards, & Greenwald, 2002). Some studies are exceptions, however, with EMDR significantly less positive than an active treatment or combination of treatments (Deville & Spence, 1999), and not significantly different than a control (Jensen, 1994). One Type 2 study (Deville, et al., 1998) compared EMDR with and without eye movements as the efficacy of the eye movements per se remains unclear; no differences were found between the two conditions (both showed positive outcomes compared with a control condition of psychiatric support). Additional Type 2 studies (as well as Type 3) are listed in reviews (such as Bradley et al., 2005; Chemtob et al., 2000a, 2000b; Harvey et al., 2003).

EMDR has been studied in diverse populations, including female sexual assault victims (Rothbaum, 1997; Rothbaum et al., 2005), military veterans (Carlson et al., 1998; Devilly et al., 1998; Jensen, 1994), university clinic patients (Ironson et al., 2002), children who survived a hurricane (Chemtob et al., 2002), health maintenance organization patients (Marcus et al., 1997), primary care patients (Power et al., 2002), and general PTSD samples (Deville & Spence, 1999; Lee et al., 2002; Taylor et al., 2003; Wilson et al., 1995). The length of treatment has varied among studies, from just a few sessions to longer protocols.

Issues discussed in the literature include the need for better understanding of EMDR's mechanism of action (e.g., are the eye movements necessary?) and

the need for validation of EMDR for other disorders if it continues to be used for such.

### *Exposure Therapy*

Exposure therapy has been considered a gold standard treatment for PTSD because it was the first past-focused model to achieve empirical validation. As described by Foa and Rothbaum (1998), it starts with several sessions of preparation of the patient (e.g., assessment, education about exposure). After that it can include both imaginal exposure (literally, having the patient "imagine," i.e., remember, the trauma) and in vivo exposure (having the patient confront current reminders of the trauma, such as rereading newspaper articles about it, going back to the location where it occurred if that is safe to do, or touching the clothing that was worn at the time of the trauma). Breathing retraining is also recommended. There is a strong focus on exposure homework, including writing and/or audiotaping a narrative of the trauma for exposure between sessions. It can be completed in as few as 9 sessions, with a prolonged version of 20 sessions or more recommended for complex cases. One version developed for disasters is a single session (Basoglu, Salcioglu, Livanou, Kalendar, & Acar, 2005). It can also be combined with cognitive therapy or stress inoculation training (Foa & Rothbaum, 1998).

Exposure therapy is established as a premier treatment with sufficient Type 1 studies by a variety of investigators (for reviews, see, for example, Bradley et al., 2005; Butler et al., 2006; Davidson & Parker, 2001; Foa, 2000; Rothbaum, Meadows, Resick, & Foy, 2000a; Rothbaum, Meadows, Resick, & Foy, 2000b). It is listed as an effective treatment by various recent consensus practice guidelines on PTSD, including the Royal College of Psychiatrists and the British Psychological Society (2005), the Veterans Health Administration (2004), and the International Society for Traumatic Stress Studies (Rothbaum et al., 2000a, 2000b).

There are numerous Type 1 studies of exposure therapy (e.g., Basoglu et al., 2005; Boudewyns & Hyer, 1990; Bryant et al., 2003; Fecteau & Nicki, 1999; Foa et al., 2005; Foa et al., 1991; Gersons, Carlier, Lamberts, & van der Kolk, 2000; Marks, Lovell, Noshirvani, Livanou, & Thrasher, 1998; Neuner, Schauer, Klaschik, Karunakara, & Elbert, 2004; Power et al., 2002; Rothbaum et al., 2005; Tar-

rier et al., 1999; Taylor et al., 2003). Head-to-head comparisons with other PTSD models show, overall, no significant differences between exposure therapy and EMDR (Rothbaum et al., 2005), cognitive therapy (Marks et al., 1998; Tarrier et al., 1999), stress inoculation training (Foa et al., 1999), and cognitive processing therapy (Resick, Nishith, Weaver, Astin, & Feuer, 2002). Exceptions are a study in which exposure therapy outperformed both EMDR and relaxation (Taylor et al., 2003) and, conversely, a study in which EMDR showed "a slight advantage" over exposure therapy (Power et al., 2002). In one study, stress inoculation training outperformed exposure therapy (Foa et al., 1991).

Exposure therapy has also outperformed control conditions such as relaxation (Marks et al., 1998), standard counseling (Boudewyns & Hyer, 1990), supportive counseling (Bryant et al., 2003; Neuner et al., 2004), and wait-list (Basoglu et al., 2005; Fecteau & Nicki, 1999; Foa et al., 2005; Gersons et al., 2000; Glynn et al., 1999; Power et al., 2002). In a Type 1 study of military veterans, however, a group version of exposure (combined with some additional cognitive and skills interventions) showed no significant difference from the control condition (nonspecific present-focused therapy; Schnurr et al., 2003). Exposure therapy showed only a few differences from a wait-list control in one study of rape victims (Foa et al., 1991).

Interestingly, several studies have addressed whether pure exposure is sufficient by itself or whether adding cognitive therapy (cognitive restructuring and/or coping skills) improves outcomes. Several Type 1 studies indicate that the addition of cognitive therapy did not improve outcomes over and above pure exposure in various samples (Bryant et al., 2003; Foa et al., 1999; Foa et al., 2005; Foa et al., 1991); the same held true for a Type 2 study with refugees (Paunovic & Ost, 2001). Similarly, a Type 1 study that combined exposure plus behavioral family therapy found no improvement over exposure therapy alone (Glynn et al., 1999). Thus, other models that combine exposure therapy and cognitive therapy such as brief eclectic psychotherapy (Gersons, Carlier, et al., 2000), skills training in affective and interpersonal regulation/prolonged exposure (Cloitre, Koenen, Cohen, & Han, 2002), trauma treatment protocol (Deville & Spence, 1999), and untitled combinations (Lee et al., 2002; McDonagh et al., 2005; Power et al., 2002) await similar testing to eval-

uate whether the combination outperforms exposure therapy and/or cognitive therapy alone.

Exposure therapy has been studied in diverse ways. For example, it has been studied with rape victims (Foa et al., 1999; Foa et al., 2005; Foa et al., 1991; Resick et al., 2002; Rothbaum et al., 2005), war veterans (Boudewyns & Hyer, 1990; Glynn et al., 1999; Schnurr et al., 2003), refugees (Neuner et al., 2004), police officers (Gersons et al., 2000), primary care patients (Power et al., 2002), motor vehicle accident survivors (Fecteau & Nicki, 1999), university clinic patients (Ironson et al., 2002), earthquake survivors (Basoglu et al., 2005), and general or chronic PTSD samples (Bryant et al., 2003; Lee et al., 2002; Marks et al., 1998; Power et al., 2002; Tarrier et al., 1999; Taylor et al., 2003). It has also been studied with both cognitive-behavioral training (CBT) experts and novices (Foa et al., 2005), showing no significant difference between them.

Various studies fit the categories of Types 2 through 5 but are not reviewed here because there are already so many Type 1 studies. Moreover, the Type 2 studies are mostly comparisons with EMDR that do not substantively change the conclusion drawn by most reviewers at this point, which is that the two treatments both work and do not show any consistent pattern of significant difference between them (see above). For more comprehensive reviews of exposure therapy, see, for example, Bradley et al. (2005); Davidson and Parker (2001); Foa (2000); Rothbaum et al. (2000a; 2000b); and van Etten and Taylor (1988).

Issues that have been discussed in the literature include exploration of why therapists may be hesitant to adopt exposure therapy (Becker et al., 2004; Feeny, Hembree, & Zoellner, 2003; Zayfert & Becker, 2000), debate about its dropout rate (Zayfert et al., 2005), and discussion of whether exposure therapy may be best suited for patients with classic PTSD symptoms rather than those who have prominent guilt, shame, or numbing (Solomon & Johnson, 2002).

### *Cognitive Processing Therapy*

Cognitive processing therapy (CPT) was originally developed for female rape victims (Resick & Schnicke, 1992) and has been expanded to military veterans (Monson et al., in press), child sexual abuse survivors (Chard, 2005) and incarcerated adolescents (Ahrens

& Rexford, 2002). In this model, the patient writes trauma narratives as homework outside of the therapy session. In addition, there is a strong focus on cognitive restructuring to address both overly generalized beliefs ("the world is unsafe") and overly constricted beliefs ("it's all my fault"). The therapy also draws on McCann and Pearlman's (1990) trauma themes of safety, trust, power, esteem, and intimacy (Solomon & Johnson, 2002).

Three Type 1 studies evidence positive effects for CPT. It has outperformed a minimal attention control (Resick et al., 2002) and wait-list (Ahrens & Rexford, 2002; Chard, 2005; Monson et al., in press) and has done as well as exposure therapy (the only difference was that CPT was more helpful for guilt symptoms; Resick et al., 2002). An earlier Type 2 study (Resick & Schnicke, 1992) on rape victims evidenced positive outcomes compared with wait-list.

### *Other Past-Focused Models*

*Systematic desensitization* takes a gradual approach by having the patient create a list of stressful memories or reminders of the trauma and rating them from most to least disturbing. The patient is then guided to tolerate the least stressful trauma reminder, and after success in that, moves sequentially through each of the more disturbing ones. Often the patient is taught relaxation or other anxiety management tools for tolerating the trauma reminder. Type 2 studies provide evidence that systematic desensitization outperformed wait-list (Bowen & Lambert, 1986; Brom, Kleber, & Defares, 1989; Frank et al., 1988). Also, a combination of systematic desensitization plus biofeedback outperformed a no-treatment control (Peniston, 1986). However, systematic desensitization was studied primarily in the 1980s and no longer appears to draw research interest.

*Flooding* might be considered the opposite of systematic desensitization. In flooding, the patient is confronted with the most disturbing trauma reminders and required to tolerate them until extinction of upsetting emotion occurs. Rather than gradual or paced exposure to traumatic memory, the patient is "flooded" to produce rapid therapeutic gain. Flooding has similarities to exposure therapy but involves having the therapist present the patient with a detailed description of a traumatic scene (based on information gathered prior to the flooding session), rather than the patient telling the narrative of the

event. Type 2 studies evidence flooding's superiority to a control condition (Cooper & Clum, 1989; Keane, Fairbank, Caddell, & Zimering, 1989). As with systematic desensitization, flooding appears to have lost favor with researchers, superseded by other past-focused treatments (e.g., EMDR, exposure).

*Virtual reality therapy* is a version of exposure therapy that makes use of advanced graphics, sound effects, and computer technology to immerse the patient in a realistic, visually rich "virtual environment." For example, one model designed for military veterans has the patient don headgear to view "a virtual Huey helicopter flying over a virtual Vietnam, and a clearing surrounded by jungle" (Rothbaum, Hodges, et al., 2001). As the patient moves, the scene appears to move, too, via body-tracking devices. A Type 3 study evidenced positive results for Vietnam veterans (Rothbaum, Hodges, Ready, Graap, & Alarcon, 2001). Applications to the World Trade Center and to the Iraq war have also been described (Difede & Hoffman, 2002; Rizzo et al., 2005). Such technology-intensive models are likely to increase in the future and may include Internet-based and telemedicine approaches.

*Psychodynamic therapy* encompasses a variety of approaches that may have, for example, goals of insight, resolving intrapsychic conflicts about the trauma, processing to address "information overload," exploration of the relationship with the therapist, and abreaction (expressing feelings about the trauma; Horowitz, 1976; Krupnick, 2002). Although psychodynamic therapy is widely used by therapists for all types of mental disorders, it has been little studied for the treatment of PTSD. One Type 2 study evaluated short-term psychodynamic therapy versus hypnosis, trauma desensitization, and wait-list control. All three active treatments outperformed the control (Brom et al., 1989). Finally, one Type 1 study evaluated a mixed model (brief eclectic psychotherapy, combining exposure therapy and psychodynamic therapy), and found it to outperform a wait-list control (Gersons et al., 2000). For a more detailed review, see Kudler et al. (2000).

*Hypnosis* is another model that is used in clinical practice, but as yet is rarely studied empirically (Cardena, 2000; Solomon & Johnson, 2002). Typically, hypnosis involves induction of an altered state of consciousness to help the patient process painful material; specific protocols vary greatly. The only study thus far on hypnosis for PTSD is the Type 2 study

named in the paragraph above (Brom et al., 1989), which found positive results compared with a wait-list control. Hypnosis has also been studied for acute stress disorder (e.g., Bryant et al., 2006) but that is beyond the scope of this chapter. It is noteworthy that an American Psychological Association task force concluded that hypnosis should *not* be used for the purpose of recovering trauma memories (i.e., to access memories that are not yet conscious).

Finally, it is worth noting that although past-focused treatments have shown strong benefit, at least one model appeared to have precipitated substantial deterioration in patients. As reported by Solomon & Johnson (2002), a 4-week residential program was provided to Lebanese war veterans in which they were given intensive exposure to military cues, including "living in tents, wearing uniforms, weapons, artillery, and hand to hand combat training" (p. 950). Results showed significant decline among the treated veterans compared with an untreated control condition.

### Present-Focused Treatments

Present-focused PTSD treatments help patients attain improved coping skills to function in day-to-day life. A variety of cognitive, behavioral, and interpersonal methods are typically used. These may include cognitive restructuring to help the patient acquire more adaptive thinking, developing a schedule of productive activities, learning to relate better to others (e.g., social skills training), relaxation exercises, grounding (sensory focus to distract from upsetting emotions), and education about PTSD.

Such treatments go by a variety of names, including CBT, stress inoculation training, cognitive therapy, seeking safety, dialectical behavior therapy, and psychoeducation. At this point, the strongest evidence (Type 1 studies) and widest adoption accrue to cognitive therapy, stress inoculation training, and seeking safety.

### Cognitive Therapy

In cognitive therapy for PTSD, the goal is to help patients become aware of their maladaptive beliefs and modify them to become more adaptive. This may include, for example, correcting excessively negative assumptions about the trauma (e.g., self-blame); exploring the connection between beliefs, feelings,

and behavior; and identifying inaccurate appraisal of threats in the current environment. Examples of models include those by Ehlers, Clark, Hackmann, McManus, & Fennell (2005), Foy (1992), Tarrier et al. (1999), and others. A cognitive component is also part of many of the past-focused models reviewed above, as well as many of the combination models reviewed below. At this point, the broader term *cognitive-behavioral therapy* is applied to a very wide array of models for PTSD; indeed virtually all the treatments covered in this chapter could be labeled cognitive behavioral (as in the review by Bisson and Andrew, 2005). In this chapter, *cognitive therapy* refers to models that do not include a past-focused component.

Several studies of cognitive therapy for PTSD have been conducted. Overall, they indicate positive results (Ehlers et al., 2003; Marks et al., 1998; Tarrier et al., 1999;); see also the review by Butler et al. (2006). Type 1 studies show positive outcomes for cognitive therapy (Ehlers et al., 2003; Marks et al., 1998; Tarrier et al., 1999;). In comparison with other models, it outperformed a self-help booklet (Ehlers et al., 2003) and did as well as exposure therapy (Tarrier et al., 1999). It outperformed control conditions such as assessment-only (Ehlers et al., 2003) and relaxation (Marks et al., 1998). In a Type 2 study, cognitive therapy outperformed wait-list (Ehlers et al., 2005). Cognitive therapy has been studied in samples such as motor vehicle accident survivors (Ehlers et al., 2003), and PTSD patients (Ehlers et al., 2005; Tarrier et al., 1999).

As noted earlier, combining cognitive therapy with exposure therapy has been evaluated in three Type 1 studies, finding no benefit for using both treatments together. In sum, both treatments work, and the combination does not outperform each treatment separately (Foa et al., 1999; Foa et al., 2005; Foa et al., 1991).

### *Stress Inoculation Training*

Stress inoculation training for PTSD helps the patient manage anxiety and cope better. It can include breathing exercises, relaxation, psychoeducation, thought stopping, cognitive restructuring, role playing, and guided self-dialogue (Foa et al., 1991).

Stress inoculation training has been evaluated in several Type 1 studies (Foa et al., 1999; Foa et al., 1991). When compared with other models, it did as

well as exposure therapy in one study (Foa et al., 1999) and, in another study, it outperformed exposure therapy and supportive counseling (Foa et al., 1991). Stress inoculation training has outperformed control conditions such as wait-list (Foa et al., 1999; Foa et al., 1991). It has been combined with exposure therapy in some studies (Deville & Spence, 1999; Lee et al., 2002).

It is important to note that the thought-stopping technique may actually have negative impact on patients and should probably be deleted from stress inoculation training (Harvey et al., 2003).

### *Seeking Safety*

This model (Najavits, 2002) was designed to treat comorbid PTSD and substance use disorder in women and men. It focuses on the theme of safety, with 25 cognitive, behavioral, and interpersonal skills to address both disorders at the same time (integrated therapy), from the start of treatment (first-stage therapy). Skills include, for example, grounding, honesty, compassion, integrating the split self, and setting boundaries in relationships. It emphasizes flexibility, with skills addressed in any order the therapist chooses, and variable treatment length and pacing. At this point, it is the most empirically studied and widely adopted model for that dual diagnosis.

Seeking safety has been found comparable to a "gold standard" treatment (relapse prevention) among low-income urban women in a Type 1 study (Hien et al., 2004), with both conditions outperforming a nonrandomized community care control. In another Type 1 study, seeking safety outperformed treatment as usual in an adolescent sample (Najavits, Gallop, & Weiss, in press). In a multisite Type 2 study on homeless women veterans seeking safety outperformed treatment as usual (Desai & Rosenheck, 2006). Type 3 studies include positive results on samples of women in prison (Zlotnick, Najavits, & Rohsenow, 2003), men (Najavits, Schmitz, Gotthard, & Weiss, 2005), outpatient women (Najavits, Weiss, Shaw, & Muenz, 1998), and women veterans (Weller, 2005). Other reports include feasibility studies with positive results among men and/or women veterans (Cook, Walser, Kane, Ruzek, & Woody, 2006), women in community mental health (Holdcraft & Comtois, 2002), and a multisite study of women in community programs (Morrissey et al., 2005).

### Other Present-Focused Models

Several additional present-focused models each have been evaluated in a single study thus far. A Type 2 study of *anxiety management group* showed that it was superior to wait-list (Zlotnick et al., 1997). Three other models each have one Type 3 study: *interpersonal psychotherapy for PTSD* (Bleiberg & Markowitz, 2005); *cognitive behavioral couples treatment* (e.g., Jacobson, Dobson, Fruzzetti, Schmaling, & Salusky, 1991) adapted for PTSD (Monson, Schnurr, Stevens, & Guthrie, 2004; see also, Sweany, 1987, as described in Riggs, 2000); and *cognitive-behavioral therapy for PTSD and severe mental illness*, such as bipolar disorder and schizophrenia (Mueser, Rosenber, Jankowski, Hamblen, & Descamps, 2004).

### Past- and Present-Focused Treatments

In this section the use of past- and present-focused treatments will be reviewed. There are two basic approaches: first, the combination of past- and present-focused treatments in an attempt to create a stronger model of therapy; and second, the comparison of past- versus present-focused treatments to determine whether one is more effective than the other.

#### Combinations of Past- and Present-Focused Treatments

There is an intuitive appeal to combining the best of past- and present-focused interventions. Various models attempt to do this, and at this point there are a handful of studies evaluating whether the combination is more helpful than either alone. Surprisingly, the combination is not more effective than either one alone (see the summary of this issue in the section on exposure therapy above, and also the Type 4 review by Bisson & Andrew, 2005). Examples of models that have at least one Type 1 study include the following:

*Cognitive trauma therapy for battered women.* This model includes exploration of trauma history, exposure, PTSD education, stress management, assertiveness, and cognitive restructuring. In both a Type 1 and a Type 2 study, it outperformed a delayed treatment control in a sample of battered women who had left the abusive partner for at least 1 month (Kubany, Hill, & Owens, 2003; Kubany et al., 2004).

*Skills training in affective and interpersonal regulation-prolonged exposure.* This model combines eight sessions derived from cognitive-behavioral therapy and dialectical behavior therapy, followed by eight sessions of exposure therapy modified for child abuse survivors. A Type 1 trial found positive results compared with a wait-list control (Cloitre, Chase Stovall-McClough, Miranda, & Chemtob, 2004).

*Cognitive-behavioral therapy.* As noted earlier, the term *cognitive-behavioral therapy* (or *trauma-focused cognitive-behavioral therapy*) has been used in several studies to denote the combination of a past-focused model (usually exposure therapy) plus cognitive therapy and/or stress inoculation training (as each is defined in the section above). In Type 1 studies, such CBTs performed almost as well as EMDR (Power et al., 2002) with primary care patients (and both treatments outperformed wait-list); outperformed supportive counseling with PTSD patients (Bryant et al., 2003); outperformed wait-list for Cambodian refugees (Hinton et al., 2005); and was equal to problem-solving therapy for women with PTSD from child abuse (McDonagh et al., 2005; and both treatments outperformed wait-list). Examples of Type 2 studies include one that found CBT superior to supportive therapy and wait-list for motor vehicle accident survivors (Blanchard et al., 2003), one that found CBT superior to EMDR (Deville & Spence, 1999), and one that found CBT worse than EMDR (Lee et al., 2002).

*Dual diagnosis models.* Two models designed for co-occurring PTSD and substance use disorder combine a present- and past-focused approach: *cocaine dependence PTSD therapy* (Back, Dansky, et al., 2001) and *substance dependence PTSD therapy* (Triffleman, Carroll, & Kellogg, 1999). Both take the strategy of melding existing substance abuse treatment strategies (e.g., relapse prevention) with existing PTSD treatment strategies (e.g., exposure therapy) and have shown promising results in Type 3 pilot studies (Brady, Dansky, Back, Foa, & Carroll, 2001; Triffleman, 2000).

#### Comparison of Past- Versus Present-Focused Treatments

Available data indicate no difference between past- and present-focused treatments (e.g., Bisson & Andrew, 2005; Bradley et al., 2005; Marks et al., 1998; McDonagh et al., 2005; Schnurr et al., 2003). This

may come as a surprise, since there is a long-standing clinical literature positing that both are essential for successful PTSD recovery (Herman, 1992). Or, some patients and/or their therapists believe that the "real work" in PTSD treatment is past focused, with present-focused work merely an adjunctive method. In fact, it now appears that both present- and past-focused PTSD treatments are effective, neither outperforms the other, and both are superior, overall, to control conditions (e.g., wait-list, treatment as usual). Thus, patient preferences and therapist training should become the ultimate determinant of which model to choose from among those that have been empirically validated.

#### FUTURE DIRECTIONS

Like the proverbial glass that is both half full and half empty, PTSD treatment outcome research can be viewed in terms of its major advances over the past several years, or from the framework of all that still needs to be studied. It is humbling to recognize the work that remains.

##### Improvement in Methodology

The technology of studying psychosocial treatments is much improved compared with 20 years ago. Indeed, the meta-analysis by Bradley and colleagues (2005) found that treatment effect size was positively associated with year of publication, indicating that more recent studies showed more robust effects. However, close inspection of research reports shows a level of methodological variability that is sometimes at odds with the simple "bottom-line message" conveyed in the abstracts. The majority of studies do not sufficiently report key issues that would be helpful for understanding their results. In the current climate, results of PTSD treatment outcome research may determine what treatments and programs are funded or discontinued (Scurfield & Wilson, 2003); thus, adequate methodology has real-world implications for patients, therapists, and programs.

Two excellent methods for evaluating the quality of clinical trials are provided in the Consolidated Standards of Reporting Trials statement (2004) and by Moncrief (see Bisson & Andrew, 2005). Insistence on one or both of these consistently by journal edi-

tors and funding agencies could have a dramatic and rapid impact.

The Moncrief scale, for example,

considers 23 different methodological criteria and assigns scores to them on a 0–2 scale giving a maximum possible total of 46. The criteria included in the scale are objectives and specification of main outcomes a priori, sample size, follow up duration, power calculation, method of allocation, allocation concealment, clear description of treatment and adjunctive treatment, blinding of subjects, representative sample recruitment, use of diagnostic criteria, exclusion criteria and number of exclusions and refusals, description of sample demographics, blinding of assessor, assessment of compliance with treatments, details of side-effects, record of number and reasons for withdrawal by group, outcome measures described clearly or use of validated instruments, information on comparability and adjustment for differences in analysis, inclusion of withdrawals in analysis, presentation of results with inclusion of data for reanalysis of main outcomes, appropriate statistical analysis, conclusions justified and declaration of interests. (Bisson & Andrew, 2005, p. 4)

In addition to these could be added the need to report the rate of comorbid Axis I and Axis II diagnoses (given that most PTSD patients have one or more co-occurring disorders); therapist effects; adherence rating; therapist selection and training; method for assigning patients to therapists; use of a treatment manual; analysis of both completer and intent-to-treat samples; and whether patients were paid at attendance of treatment sessions. It has also been suggested that, at this point, it is "unwise to design any further studies with any form of controls other than genuine therapies with committed therapists, preferably treatments as practiced in the community, working with samples of patients resembling those seen in the community" (Bradley et al., 2005, p. 226). Finally, given the wide range of life problems and psychopathology of PTSD patients, there is a need to broaden assessment rather than just evaluating change in PTSD symptoms (Solomon & Johnson, 2002).

##### Broadening of Samples

Recent studies use rigorous selection of PTSD patients (rather than simply a history of trauma) and

validated diagnostic tools. Also, a broader array of patient populations has been studied in terms of socio-demographic characteristics and trauma type. However, continued expansion in sampling is needed. There are still relatively few studies of children or adolescents, geriatric patients, patients with comorbid disorders, and patients with "complex" PTSD. Approximately 30% of potential patients are excluded from PTSD treatment studies, a rate lower than in other areas of mental health treatment outcome research, but nonetheless high (Bradley et al., 2005).

### Studies of Dissemination

We know that treatments work, but we know little about how to train clinicians in them and how to disseminate them. Such questions may represent the next generation of clinical trials. Some treatments have been critiqued for having been adopted too early by frontline clinicians in advance of full empirical validation (e.g., EMDR), and others for not being adopted sufficiently despite a strong evidence base for them (e.g., exposure therapy). Why some treatments attain a "tipping point" (Gladwell, 2000) of popularity while others do not remains little understood. Moreover, clinical trials largely cherry-pick therapists and exclude those who do not perform well, an option not available in frontline treatment programs. Thus, there is a need for more effectiveness studies (i.e., evaluating how treatments fare in real-world implementation) and a need to better understand issues such as patient and therapist preferences for treatment (Tarrier, Liversidge, & Gregg, 2006), use of technology for enhancing treatment, and public health challenges such as how patients can access PTSD treatment in their communities.

### Delivery of Treatments

Another key area is more refined study of how to deliver treatments. This might include how and when they should be combined (e.g., with pharmacotherapy or other psychosocial treatments), how long to deliver them, when to determine that a treatment is not working for particular patients, outcome differences based on modality and/or pacing of treatment, whether particular therapist characteristics are necessary for effective delivery, and greater understanding of what aspects of treatments are essential.

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